

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-21. (canceled)

22. (currently amended) A method~~Method~~ of verifying the integrity of a software application which is executable in a host terminal, comprising~~characterised in that it comprises the following steps of:~~

i) using the memory context of the authentic software application during the course of execution for determining at least one series of control instructions forming an executable certificate ~~(4, 15)~~ for the software application, which can be executed by said host terminal during the execution of the software application to be verified ~~(1, 11)~~;

ii) on the host terminal, executing the software application to be verified ~~(1, 11)~~, receiving the executable certificate ~~(4, 15)~~ thus determined during step i), and executing the series of control instructions ~~for~~of said executable certificate ~~in~~using the memory context of the software application to be verified~~said host terminal;~~

iii) positively comparing the result thus obtained through the execution of the control instructions in the memory context of said host terminal with the result expected from an authentic software application; and

iv) in the event of a positive comparison, continuing with the execution of the software application to be verified (1, 11).

23. (currently amended) The method ~~Method~~ according to claim 22, in which the host terminal is provided with a processor, ~~characterised in that the~~ wherein said series of control instructions forming the certificate (4, 15) is being coded in a language which can be interpreted by said processor of the host terminal.

24. (currently amended) The method ~~Method~~ according to claim 22, in which the host terminal is provided with a virtual machine which is capable of emulating a processor, ~~characterised in that the~~ wherein said series of control instructions forming the certificate (4, 15) is being coded in a language which can be interpreted by the virtual machine of the host terminal.

25. (currently amended) ~~The method~~ Method—according to claim 22, in which the executable certificate includes a portion of the processing necessary for the satisfactory operation of the authentic application.

26. (currently amended) ~~The method~~ Method—according to claim 22, ~~characterised in that, in~~ wherein step i) ~~comprising the steps of, provision is made to establish,~~ establishing in a secure environment, a map card with the memory context of the authentic software application during the course of execution, and ~~to determine~~ determining, from the values of this memory map card, the series of control instructions intended to form the executable certificate ~~(4, 15)~~.

27. (currently amended) ~~The method~~ Method—according to claim 22, ~~characterised in that~~ wherein, in step ii), the executable certificate ~~(4, 15)~~ for the host terminal emanates from an electronic processing circuit which is physically separated from the host terminal.

28. (currently amended) The method ~~Method~~—according to claim 22, ~~characterised in that, wherein,~~ in step ii), the recovery of the execution values of the memory context ~~is effected by comprising the step of~~ reading the values at the addresses of the various portions of the memory of the host terminal, these portions containing the executable instructions and the data intrinsic to the application to be verified.

29. (currently amended) The method ~~Method~~—according to claim 22, ~~characterised in that, wherein~~ in step iii), the result obtained by the execution of said series of control instructions ~~(4, 15)~~ produces a signature for the application to be verified, said step iii) comprising the step of calculating this signature ~~being calculated by said series of control instructions (4, 15)~~ which uses the values of the memory context of the software application to be verified during the course of execution of the application.

30. (currently amended) ~~The method Method~~—according to claim 22, ~~characterised in that wherein~~ the software application comprises instructions which permit said series of control instructions ~~(4, 15)~~ to be loaded and executed in ~~its~~ the memory context ~~card map~~ by substituting at least one address for executing an instruction of said software application by at least one instruction address of the series of instructions which form the certificate.

31. (currently amended) ~~The method Method~~—according to claim 22, ~~characterised in that wherein~~ the series of control instructions ~~(4, 15)~~ is selected in such a manner that the state of the memory context of the one software application after the execution of the series of control instructions is identical ~~and/or without any modification~~ to the state of the memory context of the software application prior to the execution of the series of control instructions.

32. (currently amended) ~~The method Method~~—according to claim 22, ~~characterised in that wherein~~ the series of instructions forming the ~~certificate (4, 15)~~ is transported into a stream of data necessary for the execution of the software application to be verified.

33. (currently amended) The method ~~Method~~—according to claim 22, ~~characterised in that wherein~~ the software application to be verified is wholly or partially encoded, the correct deciphering of the software application being achieved in the event of integrity of the software application to be verified.

34. (currently amended) An apparatus ~~Apparatus~~—for verifying the integrity of a software application which is intended to be executed in a host terminal for accomplishing the method according to claim 22, ~~characterised in that it comprises~~ comprising:

- processing means capable of determining at least one series of control instructions ~~(4, 15)~~ for the software application ~~(1, 11)~~, which can be executed by said host terminal during the execution of the software application, and which forms an executable certificate of said software application,

- means for moving said executable certificate to the host terminal and executing means for executing the series of instructions forming the certificate ~~(4, 15)~~ on said host terminal during the execution of said software application,

- comparison means for positively comparing the result obtained through the execution of the control instructions with the result expected from an authentic application, and

- means which are capable, in the event of a positive comparison, of

continuing with the execution of the software application to be verified ~~(1, 11)~~.

35. (currently amended) The apparatus ~~Apparatus~~ according to claim 34, ~~characterised in that it comprises further comprising~~ a smart card or any other secure circuit which is capable of containing the series of control instructions forming the certificate ~~(4, 15)~~, ~~in that~~ the host terminal being ~~is~~ provided with a reader for reading a smart card or with a means for communicating with the secure circuit, and ~~in that~~ the means for executing the software application being ~~are~~ provided in order to pick-up, in the smart card or in the secure circuit, the series of instructions forming the certificate during the execution of the software application to be verified.

36. (currently amended) ~~The apparatus~~ Apparatus according to claim 35, ~~characterised in that wherein~~ the host terminal ~~is capable comprising means of~~ returning, to the smart card or to the secure circuit, ~~the a~~ signature produced by the series of control instructions, and ~~in that~~ the smart card or the secure circuit additionally comprises a software application verifying means which is capable of validating or invalidating the authenticity of the software application to be verified in dependence on the result of the comparison between ~~the a~~ signature produced by the series of control instructions and a value for the signature which is known and previously stored in the smart card or in the secure circuit.

37. (currently amended) ~~The apparatus~~ Apparatus according to claim 36, ~~characterised in that, in the event of a negative comparison, wherein~~ the smart card ~~is capable of comprises means for~~ modifying the operation of the software application to be verified in the event of a negative comparison.



38. (currently amended) ~~The apparatus~~ Apparatus according to claim 36, ~~characterised in that, in the event of a non-transmission of the signature in conformity with predetermined conditions, wherein the smart card is capable of~~ comprises means for modifying the operation of the software application to be verified in the event of a non-transmission of the signature in conformity with predetermined conditions.

39. (currently amended) ~~The apparatus~~ Apparatus according to claim 34, ~~characterised in that, in the event of a negative comparison, the apparatus additionally comprises further~~ comprising means which are capable of preventing the operation of the software application in the host terminal in the event of a negative comparison.

40. (currently amended) ~~The apparatus~~ Apparatus according to claim 34, ~~characterised in that~~ wherein the host terminal belongs to the group formed by data processing apparatuses, digital television decoders, equipment for visualising multimedia contents, micro-computers, smart cards, personal organisers, game consoles, and mobile telephones ~~or the like.~~

41. (currently amended) The apparatus ~~Apparatus~~ according to claim 34, ~~characterised in that wherein~~ the processing means ~~are capable of comprising means for determining~~ a plurality of executable certificates ~~(4, 15)~~ which differ from one another according to a selected rate and/or condition.

42. (canceled)

43. (currently amended) The method ~~Method~~ according to claim 22, ~~characterised in that it additionally comprises,~~ further comprising: after step i), a step consisting of inserting the executable certificate ~~(4)~~ into a first stream of data and of processing, through encoding, a second stream of the data necessary for the satisfactory operation of the software application ~~(1, 11)~~ to be verified, prior to said second stream ~~not~~ being obtained for processing through the software application ~~(1, 11)~~ to be verified.

44. (currently amended) ~~The apparatus~~ Apparatus according to claim 35, ~~characterised in that it additionally comprises further comprising~~ means which are capable of inserting the executable certificate ~~(4)~~ into a first stream of data and means for processing, through encoding, a second stream of the data necessary for the satisfactory operation of the software application ~~(1, 11)~~ to be verified, prior to said second stream ~~not~~ being obtained for processing through the software application ~~(1, 11)~~ to be verified.

45. (new) The method according to claim 22, wherein the series of control instructions is selected in such a manner that the state of the memory context of the software application after the execution of the series of control instructions is without any modification to the state of the memory context of the software application prior to the execution of the series of control instructions.

46. (new) The apparatus according to claim 34, wherein the processing means ~~comprises~~ means for determining a plurality of executable certificates which differ from one another according to a selected condition.